COS 301.1 Reg. No. .....

CREDIT BASED THIRD SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2012

COMPUTER SCEINCE

PAPER III – DBMS AND DATA STRUCTURE USING C

Time: 3 Hrs Max. Marks: 80

PART – A

1. **Answer any TEN questions from the following:** 2x10=20
   a) What do you mean by data Independence?
   b) Define the terms: i) database schema ii) primary key
   c) Differentiate stored attribute and derived attribute.
   d) What is domain constraint? Give example.
   e) List any four data types supported by SQL.
   f) Give the general form of UPDATE command.
   g) How do you define CHECK constraint for a table column?
   h) What is a sub query? Give example.
   i) Differentiate linear and non linear data structure.
   j) What is the drawback of array representation of queque?
   k) Give the algorithm to display the contents of singly linked list.
   l) Define the terms: i) Siblings ii) Degree of a node.

PART – B

Answer any TWO questions from each unit.

UNIT – I

2. a) Explain any three characteristics of a database approach
   b) Write a note on database users. (6+4)

3. a) With a neat diagram explain three schema architecture of the database system.
   b) Explain Roles and structural constraints with reference to ER model. (6+4)

4. a) Explain SELECT and PROJECT operators with examples.
   b. Explain referential integrity constraint.
   c) Explain any two types of join operations with example. (3+3+4)

UNIT – II

5. a) Explain any five functions available in Oracle.

   b) Consider the following tables.

      ACCOUNT_MASTER (ACC_NO, NAME, ADDRESS, CITY, PIN, BALANCE)
      LOAN (ACC_NO, LOAN_NO, LOAN_AMOUNT, BALANCE-DUE)

      Create above lables using following constraints.

      i) ACC_NO should start with 'A' and it is primary key for ACCOUNT_MASTER table
      ii) Define (ACC_NO, LOAN_NO) as primary key for LOAN table
      iii) Specify foreign key for loan table
      iv) BALANCE and BALANCE_DUE cannot be 0 and negative value. **(5+5)**

6. a) Explain ALTER TABLE command with options for adding column, Risizing column and adding/dropping constraints.

   b) Explain any five types of SELECT statements in ORACLE. **(5+5)**

7. a) Explain the following predicates/ clauses with syntax and example.
      i) LIKE ii) IN iii) ORDER BY

   b) Explain GROUP By.... HAVING clause with syntax and example. **(6+4)**

UNIT – III

8. a) What is stack? Give the algotrithms for PUSH and POP operations of the stack.

   b) Write the algorithm for inserting mode at the beginning and deleting from the end of the singly linked list. **(5+5)**

9. a) Explain how linked list is implemented using array.

   b) What is doubly linked list? Give the algorithm to traverse a doubly linked list in forward direction.

   c) Differentiate array and linked lists. **(4+4+2)**

10. a) Give the recursive algorithms for inorder, preorder and post order traversal of binary trees.

    b) Write a note on applications of binary trees. **(2+3+5)**

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COS 301.1 Reg. No. .....

CREDIT BASED THIRD SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2013

COMPUTER SCEINCE

PAPER III – DBMS and Data Structures using C

Time: 3 Hrs **Max. Marks: 80**

PART – A

1. Answer any TEN questions from the following: **2x10=20**

a) Define physical data independence.

b) Define the terms i) Database Schema ii) entity

c) What is recursive relationship? Give example.

d) What is super key of a relation?

e) How do you add constraint to the already created table?

f) Name any two DDL Commands in SQL.

g) How do you define foreign key constraint at table level?

h) What is data structure? Name two classifications of data structures.

i) Write two differences between array and linked lists.

j) What is complete binary tree?

k) Write the algorithm to traverse linked list.

l) Define the terms i) depth ii) leaf node with reference to binary tree

PART – B

Answer any TWO questions from each unit.

UNIT – I

2. a) Explain any three advantages of DBMS over file oriented systems.

b) Write a note on Database Users. **(6+4)**

3. a) Explain three schema architecture of database system with neat diagram.

b) Explain various types of attributes in E-R model. **(5+5)**

4. a) Explain entity integrity and referential integrity constraints.

b. What is join? Explain different types of join operators with example. **(4+6)**

UNIT – II

5. a) Give the basic structure of oracle system and explain its components.

b) Create the following table
EMP (Empno, ename, basic, dept, djoin) according to the following.
i) Empno should be primary key
ii) basic should not be left blank
iii) djoin should be between 01-Jan-2001 and 31-12-2005
iv) name and dept should be in uppercase. **(6+4)**

6. a) What are data constraints? Differentiate between column level and table level constraint with example.

b) Explain any three aggregate functions with example. **(4+6)**

7. a) Explain pattern matching and range searching predicates with syntax and example.

b) Explain following with example
i) ORDER BY clause
ii) IN predicate
iii) UPDATE command **(4+6)**

UNIT – III

8. a) What is Stack? Write algorithms to perform push and pop operations on stack.

b) Explain different types of linked lists with neat diagrams. **(5+5)**

9. a) How linked lists are implemented using array? Explain with example.

b) Write the algorithms to insert and remove elements from queue. **(4+6)**

10. a) What is binary tree? Write recursive algorithms for inorder and postorder traverse of binary tree.

b) Write the algorithms to delete the node from the beginning of linked list. **(5+6)**

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COS 301.1 Reg. No. .....

CREDIT BASED THIRD SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2014

COMPUTER SCIENCE

PAPER III – DBMS and Data Structures using C

Time: 3 Hrs **Max. Marks: 80**

PART – A

1. Answer any TEN questions from the following: **10x2=20**

a) What is database and database management system?

b) Differentiate between simple and composite attributes.

c) What is database state?

d) What is candidate key? Give example.

e) List any four data types supported by SQL.

f) Give the general format of insert into command.

g) What is data constraint? Give example.

h) Differentiate between primary key and super key.

i) Give the conditions for stack_empty and stack_full.

j) Give any two advantages of linked lists.

k) Define the terms i) sibling ii) degree of a node.

l) What is doubly linked list?

PART – B

Answer any TWO questions from each unit.

UNIT – I

2. a) Explain any three characteristics of database approach.

b) What is data Independence? Explain two types of data independence. **(6+4)**

3. a) Decline the following terms.

i) Domain ii) Entity set iii) weak entity iv) Binary Relationship

b) How integrity constraints are violated during insert, update and delete operation on data base? Explain. **(4+6)**

4. a) Explain any two operations of relational algebra with example.

b. Write and explain all the symbols used in E-R Diagrams **(5+5)**

UNIT – II

5. a) Explain Alter Table command with all the options.

   b) Explain following predicates /clauses/constraints with syntax and example.
   i) BETWEEN ii) GROUP BY iii) CHECK **(4+6)**

6. a) Consider the following tables STUD(rno, name, class), Marks (rno, total,grade), ATTENDANCE (rno,sub_no,attend), SUBJECT (sub_no,sname)
   Students gets attendance shortage if number of classes attended is below 75.
   Write the SQL queries for the following.
   i) List rno,name ,total and grade of each student.
   ii) List rno, name and class of students who are having attendance shortage.
   iii) List the attendance of all the subjects of the student who's regno is 1234

   b) Explain any four aggregate functions available in Oracle. **(6+4)**

7. a) Explain different types of SELECT statements with example and syntax.

   b) Explain different types of join statements with examples. **(6+4)**

UNIT – III

8. a) What is queue? Write the algorithms to perform INSERT and REMOVE operations on queue.

   b) Write the algorithms to create and display doubly linked list. **(5+5)**

9. a) Explain the pointer implementation of linked lists.

   b) Write the algorithms to implement push and pop operations of stack. **(4+6)**

10. a) Write a note on applications of binary trees.
    b) Write the algorithms to construct binary search tree. **(5+5)**

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COS 301.1 Reg. No. .....

CREDIT BASED THIRD SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2016

COMPUTER SCIENCE

PAPER III – DBMS AND DATA STRUCTURES USING C

Time: 3 Hrs. **Max. Marks: 80**

PART – A

1. Answer any TEN questions from the following: **10×2=20**

a) Define the terms: i) Primary Key ii) Database Schema

b) Name the different types of database users.

c) Differentiate stored attribute and derived attribute.

d) What do you mean by data abstraction?

e) Write the SQL statement to display system date.

f) Compare and contrast UNIQUE Key and Primary Key.

g) What is subquery? Give example.

h) Differentiate linear and non linear data structures.

i) Mention any two differences between arrays and linked list.

j) List any four operations that can be performed in linked list.

k) Define the following terms.

i) Siblings ii) Degree of a node

l) What is Data Independence?

PART – B

Answer any TWO questions from each unit.

UNIT – I

2. a) Explain any three characteristic of a database approach.

b) Explain the role of a DBA. **(6+4)**

3. a) Explain different types of DBMS languages.

b) Describe three schema architecture of DBMS. **(6+4)**

4. a) Explain the following terms.
a) Domain b) Attribute c) Tuple d) Relation

b) Explain SELECT and PROJECT operation in relational algebra. **(6+4)**

UNIT – II

5. a) With syntax and example explain the following statements in oracle.
i) Alter table ii) Update iii) Select

b) Explain 'GROUP BY' and 'HAVING' clause with syntax & example. **(4+6)**

6. a) Explain any three Aggregate functions in oracle, with syntax and example for each.

   b) Write a note on CHECK constraint. **(4+6)**

7. a) Explain different data types that a cell can hold in oracle.

   b) Create a table called 'STUDENT' with the following columns (Student Name, Reg. No., Marks) where reg. no. is the key attribute. Answer the following queries.
      i) Retrieve Student Name and Reg. No.
      ii) Sort the data in descending order of student name.
      iii) Retrieve the student name starting with letter 'a' and containing 5 character.
      iv) Modify the marks for reg. no. '140913' as 250. **(5+5)**

UNIT – III

8. a) What is stack? Write the algorithm for PUSH & POP operations in stack.

   b) What is doubly linked list? Write the node structure of doubly linked list, using C. **(6+4)**

9. a) Write the algorithm for inserting node at the beginning and deleting from the end of the singly linked list.

   b) Construct binary search tree from the following numbers:
      80, 35, 5, 1, 12, 98, 300
      Perform preorder and inorder traversals. **(6+4)**

10. a) Write an algorithm for inorder, preorder and postorder traversals of binary tree.

    b) Write algorithm to perform insert and delete operations in queue. **(6+4)**

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